of this successful experience, we suggest expanding this model of care to other cardiac surgical programs.

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Discussion

Dr James Brevig *(Everett, Wash)*. I work in Everett, Washington, at a community hospital. I thank the membership for the opportunity to discuss this presentation.

This is a difficult issue to study because it is hard to get a control group, which is evident to us from the presentation. Nevertheless, having worked in a similar model since 2004, which is when we opened our single-stay unit, a similar concept to the UB model, I am convinced this is a better model of care than the traditional model of care that involves a critical care unit and a variety of step-down, progressive care, or telemetry units. I am delighted to see this article and the concept getting some attention from our peers.

I would like to point out a couple of things that we as cardiac surgeons do not necessarily think about much, which is the process that goes on during the transfer of a patient and what the cost of that process is both to our patients and to our institution. I am going to remind us of a few of these steps.

Our patients typically recover from cardiac surgery in a critical care unit. At some point, the patient's nurse actually makes the decision that the patient is no longer critically ill, and at that point the patient stops getting critical care. The question then is what care is the patient getting? The patient is not getting telemetry care or critical care. Really, the patient is waiting for the next step, which is the surgeon to decide the patient is ready to progress. After that decision, they need to get a bed on another unit. Then the physical transfer, packing up the belongings, has to happen. The new nurse taking care of the patient will then get a report that involves an information transfer. Telemetry or step-down nurses typically work in 8-hour shifts, and so by this time it is probably a shift change, and so another nurse will get a report. If you think about the process, if I were going to design a process that was prone to error, this is the one I would design. This is the one we are using today.

One thing I would highlight from the presentation is the flexibility of this UB model that allows us to tailor the care to the patient's recovery, and so instead of erecting artificial barriers to the patient care, namely, which unit the patient happens to be in at the time, we can actually tailor the patient's care to the stage of his/her recovery. That works both ways by the way. The patient gets sick, needs a little inotropic or pressor support, volume, and respiratory support, and the patient is already in a critical care–capable room being taken care of by a critical care–trained nurse.

My last comment before I move on to my questions is that this should actually be presented as a quality of care improvement initiative and a process of care improvement initiative. It may well save money or it may not, but regardless, it is an improvement in the care we offer our patients.

You noted that you observed fewer complications than in your control groups, and I am not completely convinced of the validity of those controls, but I agree we need some kind of benchmark, and you used regional and national centers as your control groups. Which parts of those improvements do you think the universal care model was responsible for? You had a bunch of improvements in outcomes. You had a relatively short length of stay. Is there any causal relationship in any of this? You use the word ''association'' in your presentation.

Dr Emaminia. I could not agree more about the benefits that the UB model offers. In regard to the question, there are several outcomes and complications that we talked about, specifically, we focused on atrial fibrillation and pneumonia as 2 postoperative complications, and decreased length of ICU and hospital stay. For atrial fibrillation, as I said, we have treatment protocols and patients are prophylactically started on amiodarone before the operation. What the UB does to decrease the rate of postoperative arrhythmia is the continuity of care. When the patients are in the UB unit, they are being monitored throughout the stay, and any rhythm abnormality is proactively detected and prompted treated.

In terms of complications such as pneumonia, and in general postoperative infections, patients stay in 1 room and the same team of nurses and physicians are taking care of 1 patient. This approach decreases the contact that multiple house staff might have with a patient during hospital stay.

Dr Brevig. In your experience, are there any downsides to this? If there are members in the audience who like the presentation and concept, and want to institute this at their hospitals, what downsides did you find? What barriers did you have?

Dr Emaminia. There are multiple challenges in the way of starting a UB model. First may be the physical plant and that the new system should start from scratch, and the concept that there are separate ICUs and step-down units. Staffing issue is also important because within an 8- to 12-hour shift, there might be variable patient-to-nurse ratios from 1:1 to 1:4, and nursing administration may have a hard time setting a fair and rational schedule for all their staff.

Dr Brevig. How were you able to staff a 10-bed unit efficiently? One of the hurdles we had was that it was impossible to staff a small unit efficiently.

Dr Emaminia. Yes, challenges with staffing is one of the most important issues we have. Any UB model would have that issue, and we are currently working on that.

Dr Brevig. Thank you.

Dr Robert Cerfolio *(Birmingham, Ala).* Well presented. Congratulations to you and Dr Corcoran for bringing this to the forum. What about your design? You have shown that you have world-class surgeons up there—you have Phil and a whole bunch of other great surgeons—and that you guys did better. Have you lost equipoise or could you now perform a randomized trial where you put half the patients into your standard of care and half the patients into a UB model? Would you be willing to do that now, Phil, or have you lost all equipoise to doing that?

Dr Corcoran. With regard to the UB model, our program, we are in a Certificate of Need state in Maryland, and the Maryland State Health Care Commission controls absolutely every aspect of cardiovascular surgery. We are the ninth and for the foreseeable future probably the final program that has been opened in the state of Maryland. We are the only program in our local regional area that has maintained a UB model. One of the big issues is a nursing staffing issue, and that is something we are working through right now. There is no question about that. It would be difficult for us to go back. We do have a large series of ICUs because our hospital system does a lot of trauma surgery. It would be hard for us to put patients into a conventional ICU setting with step-down cardiac surgery at this point in time. It would require almost a reversal of our paradigm shift that we have had.

Dr Cerfolio. Then my only point is because they cannot, maybe someone in the audience can, and that is what the hospital administrators want to see to enact this. So if someone would do that, you would get up on the forum and change health care policy in the United States, and for members of the audience who have equipoise it would be easy to do.